

Using the PDK Documentation

Palm OS® 5 PDK

PalmSource Confidential

CONTRIBUTORS

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Using the PDK Documentation

The Product Development Kit contains documentation that covers various aspects of the porting the Palm OS®. This section provides a brief overview of what each manual describes. The manuals are listed in the order in which we recommend you read them in.

Where to Begin

Introduction to the PDK

Provides an introduction to the Product Development Kit. This introduction includes a description of the layout and content of the kit.

Getting Started on ARM

Before you can start working with the kit you must have a development environment in place. This guide provides help in getting the environment set up, as well as the basics of using the reference board. Once your environment is in place you are walked through the process of loading the Palm OS ROM onto the Cogent board. After the Palm OS is running on the reference board you are ready to begin development for your platform.

Software Development Cycle

The manuals dealing with the software development cycle have been divided into three categories:

- Core — These manuals provide conceptual information and development procedures that can be used across all Palm Powered platforms.

- **Technologies** — These manuals focus on a particular technology and provide the information necessary to implement this technology.
- **Tools** — These manuals describe the tools used to build the components of a ROM as well as the ROM itself.

Core Manuals

Coding Recommendations

Contains a set of recommendations that make the code you write easier for other developers to maintain. This is not a standards document that all developers are expected to abide by. It suggests ways of solving common development problems.

DAL Customization Guide

In order to get the sample DAL running on the reference board, you may need to modify the source code to reflect specific hardware features that differ from the reference board used by Palm. This guide provides information necessary to customize features available in the DAL.

In order to understand how these changes impact the rest of the ROM, an architectural overview of the Palm OS and respective layers is provided.

DAL Reference

The DAL (Device Abstraction Layer) Reference documents the software layer that lies between the Palm OS and the hardware. This layer is modified to support specific hardware choices you make for your ARM-based Palm OS devices.

This guide documents the API's in the DAL and should be used in conjunction with the *DAL Customization Guide* as well as the various technology manuals. You should consult this material when modifying the DAL source code.

The DAL consists of three layers, each one described in its own section in this guide:

HAL	The Hardware Abstraction Layer exposes an API to the Palm OS. These functions can be modified to add new functionality as required. Recommended changes include support for specific implementations on an ARM processor, and device-specific hardware peripherals.
KHAL	The Kernel Hardware Abstraction Layer can be modified as needed to tune the kernel.
KAL	The Kernel Abstraction Layer is provided in the form of API descriptions only. This component can not be modified. The routines in this layer are called to accomplish a particular kernel-related task.

Customizing the Palm OS Platform

Extending the functionality of the Palm OS is done with ARM native shared libraries and extensions, or patches, to the OS. This guide describes how to build shared libraries as well as what a shared library has to implement in order to allow access from and to the Palm Application Compatibility Environment. It also describes how to patch out existing functionality through extensions.

Technology Manuals

Expansion Manager Solutions Guide

One extension to the Palm OS is the Expansion Technology. In order to utilize this feature, two additional shared libraries must be created. Part two of this guide covers how to create a slot driver and file system shared library, and use them in conjunction with the Expansion and Virtual File System Managers.

Serial Communications Driver Design Guide

A communications protocol must be decided on early in the development process. This guide provides information on creating a serial driver as well as a USB driver. These drivers support debugging, flashing, and HotSync to the desktop.

Display Driver Design Guide

This technology manual describes how to create a hardware-specific display driver that communicates with the screen manager and the blitter routines.

Tools

Building a ROM

Guides you through the process of building the sample DAL, building a ROM image that includes it, and transferring the image to the flash ROM on your board.

Building a ROM Upgrade Tool

Guides you through the process of using the Flash Kit to build a Palm OS ROM Upgrade Tool. End users of your devices can use this upgrade tool to transfer a new version of Palm OS to flash ROM on their device.

Building Palm OS Application Interfaces

Guides you through the process of creating UI resources and incorporating them into a PRC. This process includes understanding the Palm Resource Tools. Resource Tools describe the set of developer tools used on desktop platforms to create, edit, process, and compile Palm OS resource data such as forms, menus, and text, for use by Palm OS applications or other executables.

The source code for resources will be stored in a platform independent text file format. The Palm Resource Tools will operate on this new file format which is based on XML (eXtensible Markup Language) text format. This file format will be referred to as .XRD. In order to understand this new format, a section on using XML to define Palm OS User Interfaces is also provided.

Debugging with Universal Debugger

Debugging a ROM in an ARM native environment requires access to both RAM and flash. The Palm Universal Debugger is a tool that provides full assembly and source level debugging, support for ARM native shared library debugging, and support for debugging

with multiple symbolic files. This manual describes how to use the Universal Debugger.

Testing with Palm OS Simulator

The Palm OS Simulator is a version of the Palm OS recompiled for a Windows desktop environment. The Simulator merges the standard PIM applications and data, the Palm OS Managers, and the Device Abstraction Layer (DAL) updated for the Windows environment. This tool allows developers to test 68k applications in an ARM-native Palm OS environment. This manual provides reference information for developers who want to use this tool.

Customizing Palm OS Simulator

Guide to creating a custom version of the Palm OS Simulator.

Hardware Specifications

ARM-based Hardware Requirements Specification

This document is a guideline which licensees and vendors can use to develop products based on Palm OS software running on ARM-based hardware. Characteristics of typical hardware components required to design an ARM-based product are described.

Additional Resources

- Documentation

Palm publishes its latest versions of other documents for Palm OS developers at

<http://www.palmos.com/dev/support/docs/>

- Training

Palm and its partners host training classes for Palm OS developers. For topics and schedules, check

<http://www.palmos.com/dev/training>

Using the PDK Documentation

Additional Resources

- Knowledge Base

The Knowledge Base is a fast, web-based database of technical information. Search for frequently asked questions (FAQs), sample code, white papers, and the development documentation at

<http://www.palmos.com/dev/support/kb/>